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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,379	06/29/2001	Richard Henry Dee	2001-019-TAP	5546

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EXAMINER	
CASTRO, ANGEL A	
ART UNIT	PAPER NUMBER
2653	7

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/894,379	Applicant(s) DEE ET AL.	
	Examiner Angel A Castro	Art Unit 2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *01 July 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This Office Action is in response to Amendment A filed on 7/1/03.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 10-16 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Tobise et al (U.S. Pat. 5,748,416).

Regarding claims 1 and 11, Tobise et al discloses a reduced sensitivity spin valve sensor apparatus (figure 15), comprising:

a spin valve sensor; and

at least one magnetic effect inducing device 21,

wherein the at least one magnetic effect inducing device induces a magnetic field to the spin valve sensor to thereby reduce a sensitivity of a free layer of the spin valve sensor to applied magnetic fields (column 14, lines 45-48).

Regarding claims 2 and 12, Tobise discloses that the at least one magnetic effect inducing device is at least one permanent magnet (column 14, lines 40-42).

Regarding claim 3-5, 13-15, Tobise shows that the at least one magnetic effect inducing device is a pair of permanent magnet stabilizing elements 21 formed of cobalt-platinum/chromium magnets (see column 13, line 67, and figure 15).

Regarding claims 6 and 16, Tobise discloses that the at least one magnetic effect inducing device reduces the spin valve sensor's propensity to saturate (column 14, lines 21-27).

Regarding claims 10 and 20, Tobise discloses at least one insulating film 42; and at least one magnetic shield 52, wherein the insulating film is alumina (column 13, lines 62-63).

3. Claims 1, 7-9, 11, 17-19, 21-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyauchi et al (U.S. Pat. 5,852,533).

Regarding claims 1 and 11, Miyauchi et al discloses a reduced sensitivity spin valve sensor apparatus (figures 3-4), comprising:

a spin valve sensor; and

at least one magnetic effect inducing device 126,

wherein the at least one magnetic effect inducing device induces a magnetic field to the spin valve sensor to thereby reduce a sensitivity of a free layer 121 of the spin valve sensor to applied magnetic fields (column 7, lines 58-64).

Regarding claims 7 and 17, Miyauchi discloses that the at least one magnetic effect inducing device is an antiferromagnet layer (column 7, lines 44-46).

Regarding claims 8-9 and 18-19, Miyauchi discloses that the antiferromagnet layer generate a longitudinal exchange induced bias field in the free layer that reduces the sensitivity of the free layer to applied magnetic fields (column 7, lines 58-66).

Regarding claims 21 and 29, Miyauchi discloses that the at least one magnetic effect inducing device includes a pair of antiferromagnetic layers 124, 126 (see figures 3 and 4).

Regarding claims 22-24 and 30-32, Miyauchi shows that the pair of antiferromagnetic layers includes an antiferromagnetic layer 126 that pins a ferromagnetic layer at zero degrees relative to a long axis of the free layer and an antiferromagnetic layer that pins a ferromagnetic layer 124 at ninety degrees relative to a long axis of the free layer (see figure 4).

Regarding claims 25 and 33, Miyauchi discloses that the first and second antiferromagnetic layers have different blocking temperatures (column 8, lines 52-63).

Regarding claims 26 and 34, Miyauchi shows a ferromagnetic layer 123 spaced from the free layer 121 by a nonmagnetic layer 122 (see figure 3).

Regarding claims 27-28 and 35-36, since the thickness of the spacer layer of Miyauchi is the same as Applicant's, it is inherent that the thickness of the nonmagnetic layer is used to control the ferromagnetic exchange between the ferromagnetic layer and the free layer.

Response to Arguments

4. Applicant's arguments filed mm have been fully considered but they are not persuasive.

Applicant asserts in page 9:

> "It is respectfully submitted that the Tobise reference does not teach the claimed limitations of the present invention, and in fact this cited reference specifically teaches away from the claims of the present invention. The present invention is directed to a reduced sensitivity spin valve sensor, as emphasized in the language of claim 1, above: "...to thereby reduce a sensitivity of a free layer of the spin valve sensor to applied magnetic fields.""

The examiner respectfully points out that it is well known in the art that the longitudinal biasing element 21 in the reference reduce the sensitivity of the sensor in addition to the already reduced sensitivity due to the very short electrode spacing (column 12, lines 31-34). The term "reduced sensitivity spin valve sensor" in the claim is very broad since it is not specified with respect to what or which sensor its sensitivity is reduced.

Applicant asserts in page 13:

> It is respectfully submitted that Miyauchi fails to teach the limitations of the present claims. It is also directed to a different problem than the present application, and also explicitly teaches away from the presently claimed invention.

The examiner respectfully point out that it is well known in the art that exchange bias layers reduce the sensitivity of the sensor to a transverse field, resulting in a lower signal output; therefore, layer 126 in Miyauchi reduce the sensitivity of the sensor to a transverse field.

5. In response to applicant's argument that the present invention is directed to a reduced sensitivity spin valve sensor, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nakamoto et al (U.S. Pat. 6,545,847) discloses a magnetoresistive effect head (see column 3, lines 3-29, in reference with the response to arguments); Horng et al (U.S. Pat. 6,396,671) discloses a spin valve head (see column2, lines 30-48, in reference with the response to arguments).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angel A Castro whose telephone number is 703-308-8435. The examiner can normally be reached on Monday through Thursday, 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R Korzuch can be reached on 703-305-6137. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Angel Castro, Ph.D.

WILLIAM KORZUCH
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